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IN REPLY REFER TO: Joint Interoperability Test Command (JTE) **30 Oct 09**

MEMORANDUM FOR DISTRIBUTION

SUBJECT: Extension of the Special Interoperability Test Certification of Nortel Communication Server (CS) 2100 Compact Call Agent (CCA) with Software Release Succession Enterprise (SE) 09.1 and Specified Software Patch Groups

References: (a) DoD Directive 4630.5, "Interoperability and Supportability of Information Technology (IT) and National Security Systems (NSS)," 5 May 2004
(b) CJCSI 6212.01D, "Interoperability and Supportability of Information Technology and National Security Systems," 8 March 2006
(c) through (g), see Enclosure

1. References (a) and (b) establish the Defense Information Systems Agency, Joint Interoperability Test Command (JITC), as the responsible organization for interoperability test certification.

2. The Nortel CS2100 CCA with Software Release SE09.1 and specified Software Patch Groups is hereinafter referred to as the System Under Test (SUT). The SUT meets the critical interoperability requirements and is certified as interoperable for joint use within the Defense Switched Network (DSN). The SUT met the critical interoperability requirements for the following DSN switch types: Multifunction Switch (MFS), End Office (EO), Small End Office (SMEO), Private Branch Exchange (PBX) 1, PBX 2, and Deployable Voice Exchange (DVX). The MFS and EO European Integrated Services Digital Network (ISDN) Primary Rate Interface (PRI) requirements for Europe are met by the SUT with the DSN Option 11C switching system with Software Release 4.5w and specified product enhancement packages. In this configuration, the DSN Option 11C is a tandem switch and is not authorized nor approved to support line side subscribers. The SUT meets the SMEO, PBX 1, PBX 2, and DVX requirements for Europe without the DSN Option 11C.

The SUT was tested and is certified with the following optional peripherals: Intelligent Peripheral Equipment Column (IPEC), Spectrum Peripheral Module (SPM), Media Gateway 3500 (MG3500), Media Gateway 9000 (MG9K), and the MG9K with Enhanced ISDN Line Concentration Module (LCME). The MG3500 was tested and is certified only with ISDN PRI Digital Transmission Link Level 1 Interface without the capability to support Multi-Level Precedence and Preemption (MLPP) for access to the Public Switched Telephone Network (PSTN). In addition, the MG3500 is certified to be connected to any ancillary device on the Unified Capabilities (UC) Approved Products List (APL) that supports ISDN PRI interfaces without MLPP (e.g. Automatic Receiving Device, Integrated Access Switch, PBX 2, Video

Teleconferencing, etc.). The SUT is certified with or without any combination of these optional peripherals. The SUT is certified to support DSN assured services over Internet Protocol with any Assured Services Voice Application Local Area Network (ASVALAN) on the UC APL. In addition, the MG9K and the MG3500 are also certified with any certified strategic network element on the UC APL certified to transport 1 Gigabit Ethernet 1000BaseX. The SUT is also certified for joint use with any Voice Application Local Area Network (VALAN) on the UC APL. However, since VALANs do not support the Assured Services Requirements detailed in Reference (c), Command and Control (C2) users and Special C2 users are not authorized to be served by the SUT connected to a VALAN. The identified test discrepancies shown in the SUT Interoperability Summary that remained open after software patches were applied and regression testing was completed have a minor operational impact. The SUT offers a Meridian Cabinet Remote Module (MCRM-S) Remote Switching Unit (RSU); however, it did not meet the critical interoperability requirements during certification testing. Nortel developed patches in the host SUT to fix the RSU. JITC conducted a Desktop Review (DTR) and regression testing of the RSU and associated SUT host patches. The RSU met all of the critical interoperability requirements with the update of the following two patches in the SUT host and is therefore certified by JITC: DSN00 and DSN01. No other configurations, features, or functions, except those cited within this report, are certified by JITC. This certification expires upon changes that affect interoperability, but no later than three years from the date of the original memorandum (27 February 2008).

3. The extension of this certification is based upon DTR 8 and Defense Information Assurance (IA)/Security Accreditation Working Group (DSAWG) accreditation. The original certification is based on interoperability testing conducted by JITC and a review of the vendor's Letters of Compliance (LoC). Certification testing of the DSN Option 11C was completed on 18 December 2006 and documented in Reference (d). Certification testing of the CS2100 was conducted at JITC's Global Information Grid Network Test Facility at Fort Huachuca, Arizona from 30 July through 5 October 2007. Regression testing and patch verification was conducted from 19 November through 14 December 2007 and documented in Reference (e). Review of the vendor's LoC was completed on 5 October 2007. This DTR was requested to include the addition of a four card Shelf and Asynchronous Transfer Mode (ATM) Interface Manager (SAM) 21, which will be used to replace previously certified cards that are being discontinued by the manufacturer. The previously certified cards are being discontinued because of state and federal laws that prevent their use per Restrictions on the use of certain Hazardous Substances (RoHS). Table 1 depicts the cards and descriptions. This DTR was approved on 9 July 2009. DSAWG accreditation was granted on 09 September 2009.

Table 1. SAM 21 Cards

Previously Certified Card	Replacement Card	Function
NTR651RH	NTR661RH	Shelf Controller
NTR651RK	NTR661RK	Transition Module
NTR651BC	NTR661BC	Power Supply
NTR651BF	NTR661BF	Fan Unit

LEGEND:
ATM Asynchronous Transfer Mode
SAM Shelf and ATM Interface Manager

4. The SUT interoperability test summary is listed in Table 2. The MFS Capability Requirements (CRs) and Feature Requirements (FRs) are listed in Table 3. This interoperability test summary is based on the SUT's ability to meet:

a. The following network interfaces as specified in Reference (c): DSN, Defense Red Switch Network Gateway, Tactical Network Gateway, and PSTN.

b. Interface and signaling requirements for trunk, line, and network management interfaces, and interoperability CRs and FRs derived from Reference (f).

c. The overall system interoperability performance derived from test procedures listed in Reference (g).

d. Review of the LoC submitted by Nortel.

e. Internet Protocol Version 6 requirements specified in Reference (f), Paragraph 1.7, Table 1-4, verified through vendor submission of LoC.

Table 2. SUT Interoperability Summary

DSN Trunk Interfaces			
Interface & Signaling	**Critical**	**Status**	**Remarks**
T1 CAS (DTMF, MFR1, DP)	Yes	Certified	Met all CRs and FRs with the following exceptions: The SUT does not retry direct route during failed wink condition or glare condition.[1]
E1 CAS (DTMF, MFR1, DP)	Yes (Europe only)	Certified	Met all CRs and FRs with the following exceptions: The SUT does not retry direct route during failed wink condition or glare condition.[1] An E1 CAS trunk group set up for DTMF signaling only supports A, B, C, D precedence digits and only supports DP on inbound calls.[2]
T1 ISDN PRI NI 1/2 (ANSI T1.619a)	Yes	Certified	Met all CRs and FRs.
E1 ISDN PRI (ITU-T Q.955.3)	Yes (Europe only)	Certified	The MFS and EO European ISDN PRI requirements for Europe are met by the SUT with the DSN Option 11C switching system with Software Release 4.5w and specified product enhancement packages listed in reference (e). Met all CRs and FRs with the following minor exception: The SUT does not meet full requirement for carrier alarms.[3]
T1 SS7 (ANSI T1.619a)	Yes	Certified	Met all CRs and FRs.
E1 SS7 (ANSI T1.619a)	Yes (Europe only)	Certified	Met all CRs and FRs.
DSN Line Interfaces			
Interface & Signaling	**Critical**	**Status**	**Remarks**
2-Wire Analog (GR-506-CORE)	Yes	Certified	Met all CRs and FRs with the following minor exceptions: The SUT does not provide the correct precedence ring back cadence on an analog phone in accordance with the GSCR.[4] MLPP interaction when calls are placed to a MLHG DN.[5]
ISDN BRI S/T and U Interface ITU-T Q.931	Yes	Certified	Met all CRs and FRs with the following minor exceptions: MLPP interaction when calls are placed to a MLHG DN.[5] The SUT does not support MLPP interaction on BRI telephones assigned the MADN option.[6] A member of an EKTS cannot be assigned as a member of an MLHG.[7] The Conference 6 line option does not support MLPP.[8]
2-Wire Digital and Analog (Proprietary)	No	Certified	Met all CRs and FRs with the following minor exception: MLPP interaction when calls are placed to a MLHG DN.[5]
VoIP	No	Certified	Met all CRs and FRs with the following minor exception: MLPP interaction when calls are placed to a MLHG DN.[5]

Line-Side T1 CAS DTMF (Ground-Start)	No	Certified	Met all CRs and FRs. This interface is provided by the IPEC with a line side T1 interface and is certified exclusively for voicemail.

Table 2. SUT Interoperability Summary (continued)

DSN Line Interfaces (continued)			
Interface & Signaling	**Critical**	**Status**	**Remarks**
2 Wire Analog Ground Start Line (GR-506-CORE)	Yes	Certified	Met all CRs and FRs.
Voicemail			
Interface	**Critical**	**Status**	**Remarks**
Line-Side T1 CAS DTMF (Ground-Start)	No	Certified	Met all CRs and FRs. This interface is provided by the IPEC with a line side T1 interface and is certified exclusively for voicemail.
2 Wire Analog Ground Start Line (GR-506-CORE)	No	Certified	Met all CRs and FRs.
Network Management			
Interface & Signaling	**Critical**	**Status**	**Remarks**
IEEE 802.3 10BaseT Ethernet, TCP/IP	No[9]	Certified	Met all CRs and FRs.
EIA-232 Asynchronous at 9.6 kbps	No[9]	Certified	Met all CRs and FRs.
ITU-T X.25	No[9]	Certified	Met all CRs and FRs.
Automated Call Distributor			
Interface & Signaling	**Critical**	**Status**	**Remarks**
Internal Interface	No	Not Certified	The SUT offers an internal ACD capability; however this capability does not meet the MLPP interaction requirements in accordance with the GSCR. Therefore, the SUT ACD capability is not certified by JITC, nor authorized for use within the DSN by the PMO with either an internal or external ACD.
DSN Features and Capabilities			
Features and Capabilities	**Critical**	**Status**	**Remarks**
Common Features	Yes	Certified	Met all CRs and FRs with the following minor exceptions: The SUT does not provide the correct conference disconnect tone in accordance with the GSCR.[10] The SUT does not provide a splash ring on an ISDN BRI telephone when the telephone has the CFV feature assigned to the phone.[11]
Attendant	Yes	Certified	Met all CRs and FRs with the following three consoles listed on the DSN APL: Amcom Software Inc. BOSS soft console, CS2100/MSL-100 NT4X09 hard console, and the T-Metrics PhoneGroups® Personal Computer-based Console.
Public Safety	Yes	Certified	Met all CRs and FRs.
Preset Conferencing	Yes	Certified	Met all CRs and FRs.
Nailed-up Connections	Yes	Certified	Met all CRs and FRs.
Precedence Access Threshold	No	Certified	Met all CRs and FRs.
DSN Hotline Services	Yes	Certified	Met all CRs and FRs.
Tandem Switching	Yes	Certified	Met all CRs and FRs.
ISDN Services (EKTS)	No	Not Certified	The SUT does not support MLPP with EKTS. The EKTS option is not certified by JITC, nor authorized for use within the DSN by the PMO. A member of an EKTS cannot be assigned as a member of an MLHG.[5]
Synchronization	Yes	Certified	Met all CRs and FRs.
Reliability	Yes	Certified	Met all CRs and FRs.
Security	Yes	See note 12.	See note 12.
RSU			
Features and Capabilities	**Critical**	**Status**	**Remarks**
Normal Operation	No	Certified[13]	Met all CRs and FRs.
Degraded Operations	No	Certified	Met all CRs and FRs.
VoIP			
Features and Capabilities	**Critical**	**Status**	**Remarks**
VoIP Systems	No	Certified	The SUT is certified for VoIP with certified ASVALANs posted on the DSN APL. See notes 14 and 15.

Table 2. SUT Interoperability Summary (continued)

Network Gateways				
Gateway	**Interface & Signaling**	**Critical**	**Status**	**Remarks**
PSTN	T1 CAS (DTMF, MFR1, DP)	Yes	Certified	Met all CRs and FRs.
	E1 CAS (DTMF, MFR1, DP)	Yes (Europe only)	Certified	Met all CRs and FRs.
	T1 ISDN PRI NI 1/2 (ANSI T1.607)	Yes	Certified	Met all CRs and FRs.
	E1 ISDN PRI (ITU-T Q.931)	Yes (Europe only)	Certified	The MFS and EO European ISDN PRI requirements for Europe are met by the SUT with the DSN Option 11C switching system with Software Release 4.5w and specified product enhancement packages listed in reference (e). Met all CRs and FRs with the following minor exception: The SUT does not meet full requirement for carrier alarms.[3]
	Ground Start Line	Yes	Certified	Met all CRs and FRs.
Tactical	T1 CAS (DTMF, MFR1, DP)	Yes	Certified	Met all CRs and FRs.
	E1 CAS (MFR1)	Yes (Europe only)	Certified	Met all CRs and FRs.
DRSN[16]	2-Wire Analog (GR-506-CORE)	Yes	Certified	Met all CRs and FRs.

NOTES:

1 The SUT does not retry direct route during failed wink condition or glare condition. The SUT tries the direct route one time then completes the call over the alternate route. Since the call is correctly routed over the alternate route, there is no operational impact.

2 An E1 CAS trunk group set up for DTMF signaling only supports A, B, C, D precedence digits and only supports DP on inbound calls. 100 percent of all E1 CAS interfaces within the DSN using DTMF signaling are configured using either DP towards the SUT and DTMF outbound from the SUT, or DTMF both ways with ABCD precedence format. There is no operational impact.

3 With the DSN Option 11C included to meet the SUT European ISDN PRI interface requirement, there exists a minor discrepancy when either the T1 or E1 interfaces are severed. When either the T1 ISDN PRI or E1 ISDN PRI interfaces are severed, the respective carrier alarms are not propagated from one interface to the other. However; when this condition occurs, calls placed over this interface via the DSN Option 11C receive an appropriate treatment (T120 busy, or Isolated Code Announcement).

4 The SUT does not provide the correct precedence above ROUTINE ring back cadence on an analog phone in accordance with the GSCR. The GSCR requires 30 IMP. The SUT is providing precedence above ROUTINE ring back cadence of 40 IMP. Since the precedence above ROUTINE ring back cadence is distinguished from the ROUTINE ring back cadence, there is no operational impact.

5 When a member of a MLHG is busy and a higher precedence call is placed to the DN of that member (not the MLHG pilot number), the higher precedence call is forwarded to the next idle member of the MLHG. Since the higher precedence call is handled at PRIORITY and will divert to an attendant console, night service or alternate DN, there is no operational impact.

6 The SUT does not support MLPP interaction with BRI telephones assigned the MADN option. This option applies to EKTS ISDN BRI telephones. The SUT does not support MLPP interaction with these instruments. Therefore, the MADN functionality of the SUT is not certified for use of BRI instruments within the DSN. EKTS is not a required line feature for an MFS. The operational impact is minor

7 A member of an EKTS cannot be assigned as a member of an MLHG. The SUT does not allow the assignment of an ISDN BRI with options DNH (Directory Number Hunt) and MDN (Multiple Appearance Directory Number). EKTS is a conditional requirement for an MFS and therefore is considered to have a minor operational impact.

8 When the Conference 6 feature is used to perform a three-way-call, members of the three-way-call are no longer preemptable. Conference 6 is a conditional line feature and therefore has a minor operational impact. The conference feature is not certified by JITC, nor authorized for use within the DSN.

9 The Network Management requirements can be satisfied with one of the three following physical interfaces: Ethernet/TCP/IP (IEEE 802.3), Serial EIA-232/Asynchronous, or Serial Synchronous (ITU-T X.25).

10 The SUT does not provide the exact conference disconnect tone in accordance with the GSCR. The tone provided is the same tone provided to commercial customers. The tone currently being provided is distinct and will have no operational impact.

11 The SUT does not provide a splash ring on an ISDN BRI telephone when the telephone has the CFV feature assigned to the phone. This discrepancy has a minor operational impact.

12 Security is tested by DISA-led Information Assurance test teams and published in a separate report.

13 In accordance with the GSCR, an RSU can be deployed as an EO, the sole switch on a B/P/C/S, or a PBX subtending to an EO on the same B/P/C/S. The SUT RSU can only be deployed as a PBX because it does not support MLPP in the standalone mode.

Table 2. SUT Interoperability Summary (continued)

NOTES:

14 The SUT is certified to support DSN assured services over Internet Protocol with any ASVALAN on the DSN APL. The SUT is also certified for joint use with any VALAN on the DSN APL. However, since VALANs do not support the Assured Services Requirements detailed in reference (c), C2 users and Special C2 users are not authorized to be served by the SUT connected to a VALAN.

15 An IPv6 capable system or product, as defined in the GSCR, paragraph 1.7, shall be capable of receiving, processing, and forwarding IPv6 packets and/or interfacing with other systems and protocols in a manner similar to that of IPv4. IPv6 capability is currently satisfied by a vendor Letter of Compliance signed by the Vice President of the company. The vendor stated, in writing, compliance to the following criteria by 31 December 2008:

a. Conformant with IPv6 standards profile contained in the Department of Defense Information Technology Standards Registry (DISR).

b. Maintaining interoperability in heterogeneous environments and with IPv4.

c. Commitment to upgrade as the IPv6 standard evolves.

d. Availability of contractor/vendor IPv6 technical support.

16 Interoperability certification of the SUT does not constitute DRSN PM approval for connectivity to the DRSN. It is the user's responsibility to request connectivity approval directly from the PM.

LEGEND:

10BaseT	10 Mbps (Baseband Operation, Twisted Pair) Ethernet	IMP	Impulses per minute
802.3	Standard for carrier sense multiple access with collision detection at 10 Mbps	IPEC	Intelligent Peripheral Equipment Column
ACD	Automated Call Distributor	IPv4	Internet Protocol version 4
ANSI	American National Standards Institute	IPv6	Internet Protocol version 6
APL	Approved Products List	ISDN	Integrated Services Digital Network
ASVALAN	Assured Services Voice Application Local Area Network	ITU-T	International Telecommunication Union - Telecommunication Standardization Sector
BOSS	Basic Operator Services System	JITC	Joint Interoperability Test Command
B/P/C/S	Base, Post, Camp, or Station	kbps	kilobits per second
BRI	Basic Rate Interface	MADN	Multiple Appearance Directory Number
C2	Command and Control	Mbps	Megabits per second
CAS	Channel Associated Signaling	MFR1	Multifrequency Recommendation 1
CFV	Call Forward Variable	MFS	Multifunction Switch
CRs	Capability Requirements	MLHG	Multiline Hunt Group
CS	Communication Server	MLPP	Multi-Level Precedence and Preemption
DCE	Data Circuit-Terminating Equipment	MSL	Meridian Switching Load
DISA	Defense Information Systems Agency	NI 1/2	National ISDN Standard 1 or 2
DN	Directory Number	PM	Program Manager
DP	Dial Pulse	PMO	Program Management Office
DRSN	Defense Red Switch Network	PRI	Primary Rate Interface
DSN	Defense Switched Network	PSTN	Public Switched Telephone Network
DSS1	Digital Subscriber Signaling 1	Q.931	Signaling Standard for ISDN
DTE	Data Terminal Equipment	Q.955.3	ISDN Signaling standard for E1 MLPP
DTMF	Dual Tone Multi-Frequency	RSU	Remote Switching Unit
E1	European Basic Multiplex Rate (2.048 Mbps)	SS7	Signaling System 7
EIA	Electronic Industries Alliance	S/T	ISDN BRI four-wire interface
EIA-232	Standard for defining the mechanical and electrical characteristics for connecting DTE and DCE data communications devices	SUT	System Under Test
		T1	Digital Transmission Link Level 1 (1.544 Mbps)
		T1.607	ISDN – Layer 3 Signaling Specification for Circuit Switched Bearer Service for DSS1
		T1.619a	SS7 and ISDN MLPP Signaling Standard for T1
EKTS	Electronic Key Telephone System	TCP/IP	Transmission Control Protocol/Internet Protocol
EO	End Office	U	ISDN BRI two-wire interface
FRs	Feature Requirements	VALAN	Voice Application Local Area Network
GR	Generic Requirement	VoIP	Voice over Internet Protocol
GR-506-CORE	Telcordia Signaling for Analog Interface Generic Requirement	X.25	Interface between DTE and DCE for terminals operating in the packet mode and connected to public data networks by dedicated circuit
GSCR	Generic Switching Center Requirements		
IEEE	Institute of Electrical and Electronics Engineers		

Table 3. MFS Requirements

Interface	Critical	Requirements Required or Conditional		References
DSN Trunk Interfaces				
T1 SS7 (ANSI T1.619a) E1 SS7 (ANSI T1.619a) T1 CAS (MFR1, DTMF, DP) E1 CAS (MFR1, DTMF, DP) T1 ISDN PRI NI 1/2 (ANSI T1.619a) E1 ISDN PRI (ITU-T Q.955.3)	Yes Yes (Europe only) Yes Yes (Europe only) Yes Yes (Europe Only)	Trunking	• Framing (R) • Line Code (R) • Signaling (R) • Alarms (R) • WWNDP (R) • Outpulsing digit formats (R: CAS only) • Routing (R) • Trunk Groups (R) • CAS to CCS trunk interworking (R) • PCM-24/PCM-30 Interoperation (R) • Direct Inward Dialing (R)	• GSCR Section 7 • GSCR Section 7 • GSCR Section 5 • GSCR Section 2.5.7, 7.1.4 & 7.2.2 • GSCR Section 4.5.1 • GSCR Section 4.5.2 • GSCR Section 4.2 • GSCR Section 2.5.5 & 2.5.6 • GSCR Section 3.10 • GSCR Section 7.3 • GSCR Section 2.3.2
		Voice	• MOS (R) • MLPP (R) • Secure calls (R)	• CJCSI 6215.01B • GSCR Section 3 • CJCSI 6215.01B
		Facsimile	• Analog: TIA/EIA-465-A (R)	• DISR
		Data	• Modem (VBD) (R) • 56 kbps switched data (R) • 64 kbps switched data (R: E1, PRI, and SS7) • NX56 synchronous BER (R) • NX64 synchronous BER (R: E1, PRI, and SS7) • Secure data (STE/STU-III) (R)	• CJCSI 6215.01B • GSCR Section 3.10 • GSCR Section 3.10 • GSCR Section 3.10 • GSCR Section 3.10 • CJCSI 6215.01B
		VTC	• ITU-T H.320 (R)	• DISR
DSN Line Interfaces				
2-Wire Analog ISDN BRI NI 1/2 (ANSI T1.619a) Proprietary IEEE 802.3 TCP/IP	Yes Yes No No	Access	• Directory Number Identification (R) • Line signaling (R) • Loop Start Line (R: 2-Wire Analog only) • Analog Ground Start (R) • Alerting Signals and Tones (R) • WWNDP (R) • Call Treatments (R) • Call Processing • 2W user access (R: 2-Wire Analog only) • Analog busy/idle (R: 2-Wire Analog only)	• GSCR Section 2.1.1 • GSCR Section 5.2 • GSCR Section 5.2.1 • GSCR Section 5.2.2 • GSCR Section 5.5 • GSCR Section 4.5 • GSCR Section 4.1 • GSCR Section 4.4 • GSCR Section 4.3.3 • GSCR Section 4.3.4.1
		Voice	• MOS (R) • Announcements (R) • MLPP (R) • Secure Calls (R)	• CJCSI 6215.01B • GSCR Section 3.1.3 • GSCR Section 3.4.3/3.9 • CJCSI 6215.01B
		Facsimile	• Analog: TIA/EIA-465-A (R)	• DISR
		Data	• Modem (VBD) (R: 2W analog only) • 56 kbps switched data (R: BRI only) • 64 kbps switched data (R: BRI only) • NX56 synchronous BER (R: BRI only) • NX64 synchronous BER (R: BRI only) • Secure data (STE/STU-III) (R)	• CJCSI 6215.01B • GSCR Section 3.10 • GSCR Section 3.10 • GSCR Section 3.10 • GSCR Section 3.10 • CJCSI 6215.01B
		VTC	• ITU-T H.320 (R: BRI only)	• DISR
SUT Voice Mail interfaces				
2 Wire Analog (Ground Start) T1 CAS (DTMF) (Ground Start)	No	• FCC Part15/Part 68 (R): Analog only • DTMF outpulsing (C) • ROUTINE precedence only in accordance with GSCR, Section 3.3 (R) • TIA/EIA-470-B (R): Analog only		• GSCR A7.5 • GSCR A7.5, 5.4.1, 5.4.2 • GSCR A7.5.5 • GSCR A7.5.1

Table 3. MFS Requirements (continued)

Automated Call Distributor Interfaces			
Internal	No	• DTMF outpulsing (C) • ROUTINE precedence only in accordance with GSCR, Section 3.3 (R) • TIA/EIA-470-B (R): Analog only	• GSCR A7.5, 5.4.1, 5.4.2 • GSCR A7.5.5 • GSCR A7.5.1
DSN Features & Capabilities			
Feature/ Capability	**Critical**	**Requirements Required or Conditional**	**References**
Common Features	Yes	• Selective call rejection (C) • Denied originating service (C) • Code restriction and diversion (R) • Call waiting (C) • Three-way calling (C) • Add-on transfer, conference calling, and call hold (C) • Call forwarding (C) • Call pick-up (C)	• GSCR Section 2.1.2 • GSCR Section 2.1.3 • GSCR Section 2.1.4 • GSCR Section 2.1.5 • GSCR Section 2.1.6 • GSCR Section 2.1.7 • GSCR Section 2.1.8 • GSCR Section 2.1.9
Attendant	Yes	• Initiate all precedence levels (R) • Visual display (R) • Override class of service (R) • Override busy line (R) • Call deflection (R) • Auto recall (R) • Waiting queue (R) • Release to pivot (R: SS7 only)	• GSCR Section 2.2.1 • GSCR Section 2.2.2 • GSCR Section 2.2.3 • GSCR Section 2.2.4 • GSCR Section 2.2.5 • GSCR Section 2.2.6 • GSCR Section 2.2.7 • GSCR Section 2.2.8
Public Safety	Yes	• Basic Emergency Service (911) (C) • Trace of terminating calls (R) • Outgoing call trace (R) • Tandem call trace (R) • Trace of a call in progress (R)	• GSCR Section 2.4.1 • GSCR Section 2.4.2 • GSCR Section 2.4.3 • GSCR Section 2.4.4 • GSCR Section 2.4.5
Preset Conferencing	Yes	• Support 10 bridges; 1 originator and 20 conferees per bridge (R) • Assign up to 20 address numbers per bridge (R) • Use KXX codes for bridge access (R) • Conference notification recorded announcement (R) • Auto retrial and alternate address (R) • Bridge release (R) • Lost connection (R) • Secondary conferencing (R) • Address translation (R)	• GSCR Section 2.6 • GSCR Section 2.6 • GSCR Section 2.6 • GSCR Section 2.6.1 • GSCR Section 2.6.2 • GSCR Section 2.6.3 • GSCR Section 2.6.4 • GSCR Section 2.6.5 • GSCR Section 2.7
Nailed-up Connections	Yes	• Between any two like terminations (R) • PCM-24 and PCM-30, both CAS and CCS (R) • Supervision passed end-to-end for A/D or D/A (R) • Monitored and auto reconfigure (R) • Support at least 10% of circuits as nailed-up (R) • Non-preemptable (R)	• GSCR Section 2.8 • GSCR Section 2.8 • GSCR Section 2.8 • GSCR Section 2.8 • GSCR Section 2.8 • GSCR Section 2.8
PAT	No	• Classmark for/not for PAT screening (C) • 7 PAT mechanisms (C) • Outgoing call screening (C) • Functional structure (C) • Simultaneous calls limitation (C) • Overflow process (C) • Decrementing call-in-progress count (C) • Call treatment (C) • Queuing (C) • Attendant calls (C) • Operation measurement registers (C) • Maintenance and Administration of thresholds (C)	• GSCR Section 2.11.1 • GSCR Section 2.11.1 • GSCR Section 2.11.1.1 • GSCR Section 2.11.1.2 • GSCR Section 2.11.1.3 • GSCR Section 2.11.1.4 • GSCR Section 2.11.1.5 • GSCR Section 2.11.1.6 • GSCR Section 2.11.1.7 • GSCR Section 2.11.1.8 • GSCR Section 2.11.1.9 • GSCR Section 2.11.1.10

Table 3. MFS Requirements (continued)

DSN Features & Capabilities			
Feature/ Capability	**Critical**	**Requirements Required or Conditional**	**References**
DSN Hotline Services	Yes	• Hotline restrictions (R) • Auto initiate (R) • Analog and digital (R) • Subscription basis (R) • Protected hotline calling (R) • WWNDP interoperable (R)	• GSCR Section 2.12 • GSCR Section 2.12 • GSCR Section 2.12 • GSCR Section 2.12 • GSCR Section 2.12.1-4 • GSCR Section 2.12.2
Tandem Switching	Yes	• Tandem Features (R)	• GSCR Section 8 Table 8-1
Network Management	Yes	• Interfaces (R) • Measurements and data generation (R) • Fault management (R) • Configuration management (R) • Accounting management (R) • Performance management (R) • Network Management controls (R) • Remote access (R)	• GSCR Section 9.1 • GSCR Section 9.2 • GSCR Section 9.3 • GSCR Section 9.4 • GSCR Section 9.5 • GSCR Section 9.6 • GSCR Section 9.7 • GSCR Section 9.8
ISDN Services	No	• Electronic Key Telephone Systems (EKTS) (C)	• GSCR Section 10, Table 10-3
Synchronization	Yes	• External line timing mode (R) • Line timing mode (R) • Internal Stratum 3 (R)	• GSCR Section 11.1.1.1 • GSCR Section 11.1.1.2 • GSCR Section 11.1.2.1
Reliability	Yes	• GR-512-CORE (R)	• GSCR Section12
Security	Yes	• GR-815, STIGs, and DIACAP (replacement for DITSCAP) (R)	• GSCR Section 13
RSU			
Normal Operations	No	RSU function is conditional. If an RSU is provided, **all** of the following requirements must be met: • Same user features as EO, SMEO, or PBX • Normal operations in accordance with GR-532-CORE • If EO, provide diverse routing to host and PSTN	 • GSCR Section 2.10.2 • GSCR Section 2.10.2 • GSCR Section 2.10.2
Degraded Operations	No	RSU function is conditional. If an RSU is provided, **all** of the following requirements must be met: • Stand-alone - Stand-alone in accordance with GR-532-CORE - Automated Message Accounting not required - MLPP required (for RSU as EO only) • Partial stand-alone operations - Partial in accordance with GR-532-CORE - 3% users provided assured dial tone - Normal MLPP interaction	 • GSCR Section 2.10.3.1 • CJCSI 6215.01C • GSCR Section 2.10.3.2
VoIP			
VoIP System	No	VoIP function is conditional. If VoIP is provided, **all** of the following requirements must be met: • MOS 4.0 or better • ITU-T G.711 PCM Codec • Security • Network Management • Line timing • Internal Clock • Latency ≤ 60 milliseconds • IPv6 capable	 • GSCR Appendix 3 • GSCR Appendix 3 • GSCR Appendix 3 • GSCR Appendix 3 • GSCR Appendix 3 • GSCR Appendix 3 • GSCR Appendix 3 • GSCR paragraph 1.7

Table 3. MFS Requirements (continued)

Network Gateways				
Gateway	**Critical**	**Requirements Required or Conditional**		**References**
PSTN[1]	Yes	Trunking	• Positive Identification Control (R) • On-Netting (R) • Off-Netting (R)	• CJCSI 6215.01B • CJCSI 6215.01B • CJCSI 6215.01B
Tactical[2]	Yes	Trunking	• Trunk Groups (R) • Call Processing (R)	• GSCR Section 2.5.5 & 2.5.6 • GSCR Section 4
		Voice	• MLPP (R) • Secure calls (R)	• GSCR Section 3 • CJCSI 6215.01B
		Facsimile	• Analog: TIA/EIA-465-A (R)	• DISR
DRSN[3]	Yes	Access	• Alerting Signals and Tones (R) • Call Processing (R) • Call Treatments (R) • Analog busy/idle (R)	• GSCR Section 5.5 • GSCR Section 4.4 • GSCR Section 4.1 • GSCR Section 4.3.4.1
		Voice	• MOS (R) • MLPP (R) • Secure calls (R)	• CJCSI 6215.01B • GSCR Section 3 • CJCSI 6215.01B

NOTES:
1 Voice, facsimile, data, and VTC service requirements for PSTN are identical to DSN with the exception of MLPP.
2 Data and VTC services are not provided via the DSN to tactical (SMU) interface.
3 Facsimile, data, and VTC services are not provided via the DSN to DRSN interface.

LEGEND:

2W	2-Wire	GR-815	Generic Requirements For Network Element/Network System (NE/NS) Security	PCM-24	Pulse Code Modulation - 24 Channels
A/D	Analog to Digital Conversion	GSCR	Generic Switching Center Requirements	PCM-30	Pulse Code Modulation - 30 Channels
ANSI	American National Standards Institute	H.320	Standard for Narrowband VTC	PRI	Primary Rate Interface
BER	Bit Error Ratio	IEEE	Institute of Electrical and Electronics Engineers	PSTN	Public Switched Telephone Network
BRI	Basic Rate Interface	IPv6	Internet Protocol version 6	Q.955.3	ISDN Signaling standard for E1 MLPP
C	Conditional	ISDN	Integrated Services Digital Network	R	Required
CAS	Channel Associated Signaling	IT	Information Technology	RSU	Remote Switching Unit
CCS	Common Channel Signaling	ITU-T	International Telecommunication Union - Telecommunication Standardization Sector	SMEO	Small End Office
CJCS	Chairman of the Joint Chiefs of Staff	kbps	kilobits per second	SMU	Switch Multiplexer Unit
CJCSI	CJCS Instruction	KXX	K= any number 2-8; X= any number 1-9	SS7	Signaling System 7
D/A	Digital to Analog Conversion	LSSGR	Local Access and Transport Area (LATA) Switching Systems Generic Requirements	STE	Secure Terminal Equipment
DIACAP	DoD Information Assurance Certification and Accreditation Process	Mbps	Megabits per second	STIGs	Security Technical Implementation Guides
DISR	DoD IT Standards Registry	MFR1	Multi-Frequency Recommendation 1	STU-III	Secure Telephone Unit - 3rd generation
DITSCAP	DoD IT Security Certification and Accreditation Process	MFS	Multifunction Switch	T1	Digital Transmission Link Level 1 (1.544 Mbps)
DoD	Department of Defense	MLPP	Multi-Level Precedence and Preemption	T1.619a	SS7 and ISDN MLPP Signaling Standard for T1
DP	Dial Pulse	MOS	Mean Opinion Score	TIA	Telecommunications Industry Association
DRSN	Defense Red Switch Network	NI 1/2	National ISDN Standard 1 or 2	TIA/EIA-465-A	Group 3 Facsimile Apparatus for Document Transmission
DSN	Defense Switched Network	NX56	Data format restricted to multiples of 56 kbps	TIA/EIA-470-B	Performance and Compatibility Requirements for Telephone Sets with Loop Signaling
DTMF	Dual Tone Multi-Frequency	NX64	Data format restricted to multiples of 64 kbps	VBD	Variable bit data
E1	European Basic Multiplex Rate (2.048 Mbps)	PAT	Precedence Access Threshold	VoIP	Voice over Internet Protocol
EIA	Electronic Industries Alliance	PBX	Private Branch Exchange	VTC	Video Teleconferencing
EO	End Office	PCM	Pulse Code Modulation	WWNDP	Worldwide Numbering and Dialing Plan
FCC	Federal Communications Commission				
G.711	Standard for PCM of Voice Frequencies				
GR	Generic Requirement				
GR-512	LSSGR: Reliability, Section 12				
GR-532	LSSGR: Call Processing Features				

5. No detailed test report was developed in accordance with the Program Manager's request. JITC distributes interoperability information via the JITC Electronic Report Distribution (ERD) system, which uses Unclassified-But-Sensitive Internet Protocol Router Network (NIPRNet) e-mail. More comprehensive interoperability status information is available via the JITC System Tracking Program (STP). The STP is accessible by .mil/gov users on the NIPRNet at https://stp.fhu.disa.mil. Test reports, lessons learned, and related testing documents and references are on the JITC Joint Interoperability Tool (JIT) at http://jit.fhu.disa.mil (NIPRNet), or http://199.208.204.125 (SIPRNet). Information related to DSN testing is on the Telecom Switched Services Interoperability (TSSI) website at http://jitc.fhu.disa.mil/tssi.

6. The JITC point of contact is Capt. Oskar Widecki, DSN 879-5269, commercial (520) 538-5269, FAX DSN 879-4347, or e-mail oskar.widecki@disa.mil. The JITC's mailing address is P.O. Box 12798, Fort Huachuca, AZ 85670-2798. The tracking number for the SUT is 0605901.

FOR THE COMMANDER:

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U.S. Joint Forces Command, Net-Centric Integration, Communication, and Capabilities Division, J68
Defense Information Systems Agency, GS23

ADDITIONAL REFERENCES

(c) Chairman of the Joint Chiefs of Staff Instruction (CJCSI) 6215.01B, "Policy for Department of Defense Voice Services," 23 September 2001

(d) Joint Interoperability Test Command (JITC), Memo, JTE, "Special Interoperability Test Certification of Nortel Defense Switched Network (DSN) Communications Server (CS) 1000M Cabinet and CS1000M Chassis (including Voice over Internet Protocol [VoIP]) and DSN Option 11C Digital Switching Systems with Software Release 4.5w and Product Enhancement Packages," 7 March 2007

(e) JITC, Memo, JTE, "Special Interoperability Test Certification of Nortel Communication Server (CS) 2100 Compact Call Agent (CCA) with Software Release Succession Enterprise (SE)09.1 and specified Software Patch Groups," 27 February 2008

(f) Defense Information Systems Agency, "Department of Defense Voice Networks Generic Switching Center Requirements (GSCR), Errata Change 2," 14 December 2006, Revised 27 March 2007

(g) Joint Interoperability Test Command, "Defense Switched Network Generic Switch Test Plan (GSTP), Change 2," 2 October 2006